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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: GERDER et al.
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For	: BREATHING GAS TUBE...
Art Unit	: 3764
Examiner	: Amadeus S. Lopez
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Commissioner for Patents
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APPEAL BRIEF

I. REAL PARTY INTEREST

This application is assigned to Drägerwerk AG.

II. RELATED APPEALS AND INTERFERENCES

Appellant, Appellant's legal representative, or assignee has no knowledge of any appeals or interferences which will directly effect or be directly effected by or have a bearing on the Boards decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1 - 21 stand rejected and are on appeal.

IV. STATUS OF AMENDMENTS

A response to the final rejection was filed on January 15, 2008. This response did not amend the application.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

A respirator, or ventilator or other breathing equipment 1 for assisting the breathing of patients, is connected to a breathing gas tube 2 for supplying breathing gas from the respirator 1 to the patient, page 7 paragraph 22 lines 1-2. At the end of the breathing gas tube 2 distal from the respirator 1, a Y-tube is often connected to separately transport the gas flow during the inspiration phase and the expiration phase, page 2 paragraph 2. At this Y-tube, or mouthpiece, or other output device, a sensor 3 is connected for measuring parameters of the breathing gas, such as temperature, humidity, gas flow, gas concentration or pressure, page 7 paragraph 22 lines 1-2, and page 5 paragraph 14 lines 11-12. Measuring these parameters with a sensor 3 at the Y-tube, instead of at the respirator 1, provides more accurate information of the condition of the patient.

Providing the sensor 3 at the distal end of the breathing tube 2 from the respirator 1, causes a problem in getting a signal from the sensor 3 to the respirator 1. Signal lines 8 are used to connect the sensor 3 to the respirator 1, page 7 paragraph 22 lines 8-10. In order to reduce

clutter, and increase the ease of connecting a respirator 1 to a patient, the present invention arranges the signal lines 8 along the breathing gas tube 2. However this results in another problem when the breathing tube 2 is to be connected/disconnected from the respirator 1, and the sensor 3, and when the breathing tube is to be cleaned.

Breathing tubes need to be regularly sterilized or disinfected in clinical practice. Applicant has found that many contact type connections between the signal line 8 on the breathing gas tube 2, and the respirator 1 or the sensor 3 are disadvantageous in the environment that breathing gas tubes are often subjected to. A contact type connections being where one electrically conductive surface such as on the breathing gas tube 2 is placed in contact with another electrically conductive surface on the sensor 3 or the respirator 1. The harsh environment of sterilization or disinfection can cause the actual contact surfaces to deteriorate and/or become less electrically conductive. The connection/disconnection of the breathing tube happens frequently when different respirators, different breathing tubes, or different sensors are needed depending on the needs of the patient. During the connection/disconnection, the actual contact surfaces are subject to a large amount of wear. The deterioration causes the contact surfaces to become less conductive and this is especially detrimental when the sensor 3 generates low-voltage signals, pages 3-4 paragraph 8. It is often desirable to use sensors which generate a low-voltage signals, in order to reduce the size of the sensor, and increase the comfort of the patient.

The present invention uses a connection between the signal lines 8 and the sensor 3 or the respirator 1 which is a contactless interface, such as an optical interface, an inductive

interface or an infrared interface, page 7-8 paragraphs 24 and 25. Applicant has found that a contactless interface can avoid the detrimental effects caused by frequent sterilization or disinfection. Also a contactless interface does not experience the physical wear of electrical components or surfaces that occur with contact type connections. The use of a contactless interface, such as an optical interface, an inductive interface, or an infrared interface, allows signal wires to be arranged with a breathing gas tube thus reducing clutter and simplifying the connections between the respirator 1 and the patient, as well as avoiding the physical deterioration caused by frequent connections/disconnections, and frequent sterilization/disinfection of the breathing gas tube 2.

Claim 1. A respirator breathing gas tube 2 for supplying a user with breathing gas, the breathing tube 2, comprising:

a sensor means 3, (page 8 paragraph 24 lines 5-6, page 5 paragraph 14 lines 11-12, page 6 paragraph 16 lines 1-2), at an end of the breathing gas tube 2 facing away from the respirator 1, (page 7 paragraph 22 lines 1-2);

a signal line 8 extending along the breathing gas tube 2 and designed to transmit signals of the sensor means 3 to the respirator 1, (page 7 paragraph 22 lines 8-10, page 3 paragraph 7 lines 13-14);

a contactless interface 5 or 7, (page 7 paragraph 22 lines 4-5), between the signal line 8 and the sensor means 3 page 7 (paragraph 22 lines 1-2, page 3 paragraph 7 lines 14-15).

Claim 2. A breathing gas tube 2 in accordance with claim 1, wherein the signal line 8 comprises a fiberoptic waveguide 18, (page 8 paragraph 25 lines 11-12).

Claim 3. A breathing gas tube 2 in accordance with claim 1, wherein the signal line 8 is a two-wire line, (page 7 paragraph 22 lines 8-10).

Claim 4. A breathing gas tube 2 in accordance with claim 1, wherein the signal transmission between the respirator 1 and the sensor means 3 takes place bidirectionally via a data transfer, (page 8 paragraph 25 lines 11-12).

Claim 5. A breathing gas tube 2 in accordance with claim 3, wherein the two-wire line 8 is additionally designed as a tube heater, (page 5 paragraph 12).

Claim 6. A breathing gas tube 2 in accordance with claim 3, wherein the contactless interface includes a first inductive interface 5, (page 7 paragraph 22 lines 4-5).

Claim 7. A breathing gas tube 2 in accordance with claim 6, wherein the first inductive interface 5 is designed to transmit a supply voltage to the sensor means 3 in addition to the signals, (page 7-8 paragraph 24 lines 3-4).

Claim 8. A breathing gas tube 2 in accordance with claim 1, wherein the contactless

interface 5 or 6 is an infrared interface 17, (page 8 paragraph 25 lines 9-10).

Claim 9. A breathing gas tube 2 in accordance with claim 1, wherein:

the breathing tube 2 has a first end adjacent the sensor means 3 and a second end, a respirator 1 is arranged adjacent said second end, said signal line 8 extends along said breathing tube from said first end to said second end, the sensor means 3 is designed as an individual sensor means 3 or as a combination for a measurement of temperature, humidity, flow, gas concentration or pressure, (page 7 paragraph 22 lines 1-2, page 6 paragraph 16 lines 1-2).

Claim 10. A breathing gas tube 2 in accordance with claim 1, wherein another contactless interface is provided between the breathing gas tube 2 and the respirator 1, (page 7 paragraph 22 lines 1-2).

Claim 11. A process for using respiration system with a respirator 1, the process comprising the steps of :

providing a sensor means 3 for sensing breathing gas characteristics;

providing a breathing gas tube 2;

providing a contactless interface 5 or 6, (page 7 paragraph 22 lines 4-5) between the breathing gas tube 2 and the sensor 3 for transmitting sensor signals.

Claim 12. A process according to claim 11, further comprising:

disposing the sensor means 3 at an end of the breathing gas tube 2 facing away from the respirator 1;

providing a signal line 8 extending along the breathing gas tube 2 and transmitting signals of the sensor means 3 to the respirator 1 with the contactless interface being provided between the signal line 8 and the sensor means 3.

Claim 13. A process according to claim 12, wherein the signal line 8 comprises one of a fiberoptic waveguide 18, (page 8 paragraph 25 lines 11-12) and a two-wire line, (page 7 paragraph 22 lines 8-10).

Claim 14. A process in accordance with claim 11, wherein the signal transmission between the respirator 1 and the sensor means 3 takes place bidirectionally via a data transfer, (page 7-8 paragraph 23 lines 2-3).

Claim 15. A process in accordance with claim 13, wherein the two-wire line, (page 7 paragraph 22 lines 8-10) additionally heats the breathing gas tube 2, (page 5 paragraph 12).

Claim 16. A process in accordance with claim 13, wherein the contactless interface includes one of an inductive interface 5, (page 7 paragraph 22 lines 4-5) and an infrared interface 17, (page 8 paragraph 25 lines 9-10).

Claim 17. A process in accordance with claim 11, wherein the sensor means 3 measures one or more of temperature, humidity, gas flow, gas concentration or gas pressure, (page 7 paragraph 22 lines 1-2, page 6 paragraph 16 lines 1-2).

Claim 18. A respiration system, comprising:

a respirator/ventilator 1, (page 7 paragraph 22 lines 1-2);

a breathing gas tube 2 for supplying a user with breathing gas, the breathing tube being connected to said respirator/ventilator 1 at a proximal end and said breathing gas tube 2 having a distal end, (page 7 paragraph 22 lines 1-2);

a sensor 3 at a distal end of said breathing gas tube 2, (page 8 paragraph 24 lines 5-6, page 5 paragraph 14 lines 11-12, page 6 paragraph 16 lines 1-2);

a signal line 8 extending along said breathing gas tube 2 for transmitting signals of the sensor 3 to said respirator/ventilator 1, (page 7 paragraph 22 lines 8-10, page 3 paragraph 7 lines 13-14);

a contactless interface 5 or 7, (page 7 paragraph 22 lines 4-5), between said signal line 8 and said sensor 3.

Claim 19. A respiration system in accordance with claim 18, wherein the signal line 8 comprises one of a fiberoptic waveguide 18, (page 8 paragraph 25 lines 11-12) and a two-wire line, (page 7 paragraph 22 lines 8-10) establishing bidirectionally signal transmissions between said respirator/ventilator 1 and said sensor 3, (page 8 paragraph 25 lines 11-12).

Claim 20. A respiration system in accordance with claim 19, wherein the two-wire line is additionally designed as a tube heater, (page 5 paragraph 12).

Claim 21. A respiration system in accordance with claim 18, wherein another contactless interface 5 or 7, (page 7 paragraph 22 lines 4-5), is arranged between said breathing gas tube 2 and said respirator/ventilator 1, the contactless interfaces includes one of an inductive interface 5, (page 7 paragraph 22 lines 4-5) and an infrared interface 17, (page 8 paragraph 25 lines 9-10).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1– 21 are rejected under 35 USC section 103(a) as being obvious over Bahr (US 2001/0017134) in view of applicants admission of prior art (see page 7, line 9 through page 11, line 1 of applicants remarks filed November 21, 2006).

VII. ARGUMENT

Claims 1– 21 rejected under 35 USC section 103(a)

Claims 1, 11 and 18

The rejection states that it would have been obvious to substitute a contactless-type interface as admitted by applicant for the contact-type interface of Bahr '134, wherein doing so would amount to the mere substitution of one type of signal interface for another that would

work or function equally as well. The Examiner refers to KSR International Co. v. Teleflex Inc., 550 US.-, 82 USPQ2d 1385 (2007) for further support of Examiner's position.

KSR reiterates that the framework for determining obviousness is stated in Graham v. John Deere Co. and the factual inquiries are as follows:

(1) determining the scope and content of the prior art;

(2) ascertaining the differences between the claimed invention and the prior art;

(3) resolving the level of ordinary skill in the pertinent art.

The rejection uses Bahr and applicant's admission of prior art to determine the scope and content of the prior art. The rejection states that the difference between the claimed invention and the prior art is that Bahr does not disclose a contactless-type interface. The level of ordinary skill in the pertinent art does not appear to be fully addressed. The pertinent art of the present invention, and of Bahr is medical breathing respirators. Applicant's admitted prior art states that contactless interfaces are well known in the electrical engineering arts. It has not been shown that a person of ordinary skill in the pertinent art of Bahr would be familiar with the electrical engineering arts. A person of ordinary skill in the art of medical breathing respirators, has not been shown to be of sufficiently high level to substitute a contactless interface for the contact type interface of Bahr.

The art of medical breathing respirators is concerned with different gases that can be administered to patients, the concentration of those gases, and the flow characteristics of those gases. In particular, the person of ordinary skill is concerned with the gases of nitrogen, oxygen, percent water vapor/humidity, and the pressure, volume, temperature, and frequency

at which the gases are delivered. This person of ordinary skill does not have a high skill level in the electrical engineering arts.

The average designer of a respirator would of course have some knowledge of the electrical engineering arts. However the average designer of a respirator would have his or her knowledge concentrated in the biological art of breathing, and in particular in the field of providing artificial breathing or breathing assistance to a living patient. At most, the average respirator designer would only need an amount of skill in the electrical engineering arts to describe what needs to be done electrically. Often, even this is not the case in actual practice. Ideally the respirator designer would describe the electrical requirements to an electrical engineer, and the electrical engineer would fulfill those requirements. In actual practice, there is often confusion and misunderstanding between the respirator arts and the electrical arts.

The average respirator designer would ask for sensors at the distal end of the breathing tube, since this would provide a very accurate measuring of the breathing parameters of the patient. This is clearly in the field of artificial or assistance breathing. The average respirator designer might also ask that the signal lines carrying the information from the sensors be arranged along the breathing tube to minimize clutter and facilitate connections. This average designer might know from field experience that operating a respirator with several lines between the respirator and the patient becomes cumbersome. However, it is unreasonable to believe that an average respirator designer would have knowledge of all types of different electrical connections that could be used between a breathing tube and a sensor.

As support for the lack of knowledge of all different types of electrical connections

outside the engineering arts, applicant refers to the first office action in the present application, dated October 12, 2006. In this office action, claims were rejected because the specification did not described what an inductive interface was, and how it works, see page 2 section 4 of this office action. Applicant has since shown that inductive interfaces are known in the electrical engineering art, and therefore that the specification conveyed to those skilled in the relevant art that the inventor had possession of the claimed invention. This rejection has been removed.

It is clear that the persons examining this application did not have sufficient knowledge of the electrical engineering arts to realize that an inductive interface type connection exists. Applicant is uncertain as to whether or not these persons would be considered to have more or less skill than the average respirator designer.

It is applicant's position that once a respirator designer specifies to an electrical engineer that a contactless interface, such as an inductive interface, is to be used, the average electrical engineer has sufficient knowledge to incorporate a contactless interface into a respirator, especially as set forth in the present application.

There is good reason why the average respirator designer would not have knowledge of contactless interfaces. While contact interfaces are relatively simple, contactless interfaces are much more complicated and require a higher level of electrical engineering technology. The present application discloses two types of contactless interfaces, inductive and infrared. Inductive interfaces require knowledge of magnetic fields, in particular the behavior of rapidly varying magnetic fields, and their interaction with electrically conductive and nonconductive

materials. Infrared interfaces require knowledge of electromagnetic waves, such as light waves and radio waves. The understanding of electromagnet waves, specially their generation and reception is a highly specialized field. A person skilled in the art of electrical engineering would have knowledge of the technology behind inductive and infrared contactless interfaces.

However a person skilled in the art of medical breathing respirators would not be expected to know this technology, and this technology is not necessary for the practice of medical breathing respirators. Therefore the level of ordinary skill in the art of medical breathing respirators is not sufficient to automatically or obviously realize that inductive and infrared contactless interfaces exist, or that such contactless interfaces could be substituted for a contact interface, or that contactless interfaces would be beneficial.

To the person of ordinary skill in the art of medical breathing respirators, especially one who is familiar with contact type connections or interfaces, the technology behind a contactless interface would appear to be well beyond his or her skill level. The technology required to generate and receive the rapidly varying magnetic fields in an inductive contactless interface, or to generate and receive the infrared electromagnetic waves in an infrared contactless interface, would require knowledge that would not apply, or be useful, in the art of medical breathing respirators. Because this technology is so far beyond the level of ordinary skill in medical breathing respirators, the operation of a contactless interface would almost appear to be magical. Because the person of ordinary skill in the art of medical breathing respirators has very little, if any, knowledge of contactless interfaces, it would not be obvious to make the substitution described in the rejection. When the level of one of ordinary skill in the art of

medical breathing respirators is considered with respect to contactless interfaces in the electrical engineering art, the rejection becomes untenable. The independent claims therefore are not obvious in view of the applied art.

It is only the present application which makes the connection between a problem in the medical breathing respirator art, and a solution in the electrical engineering art. Before the connection made by the present application, those of ordinary skill in the medical breathing respirator art did not have the knowledge that a contactless interface from the electrical engineering art would solve a problem with medical breathing respirators. Likewise those skilled in the electrical engineering arts had no knowledge that a contactless interface would solve a problem with medical breathing respirators. Because it is only the present application which has introduced contactless interfaces to solve a particular problem of medical breathing respirators, the combination set forth in the claims is not obvious. The claims therefore define over the applied prior art.

A contactless interface is much more complicated than a contact interface. A contactless interface needs structure to generate a contactless signal that will propagate across a non-electrical material, and also needs structure to receive this contactless signal. As an example, structure would be needed to either generate a varying electric field, a varying magnetic field, a combination of both, and/or an optical signal. While structure for generating and receiving such contactless signals is well known in electrical engineering arts, the structure itself is much more complicated than a contact type connection, and would not be well known to persons of ordinary skill in medical breathing respirators. To convert a regular signal from,

and into, a contactless signal requires a significant amount of effort and knowledge that is just not part of the level of skill of the ordinary person in medical breathing respirator art. Therefore a person of ordinary skill would not be led to substitute a contactless interface for a contact interface.

It is only the present applicant who discloses that a contactless interface could be beneficially applied to a problem in a medical breathing respirator. This problem is disclosed in the present specification in paragraph 5. In particular, applicant has discovered that when the breathing tubes are regularly sterilized or disinfected, contact interfaces can degrade. Furthermore, repetitive use of the breathing tube with a contact interface can cause the contacts to wear down. This limits the usefulness of prior art breathing tubes such as a Bahr. The prior art of Bahr does not recognize these disadvantages of contact interfaces, especially in respiratory devices. It is only the present applicant who has sought to improve respirators with sensors at the distal end of a breathing tube, and who has discovered that the contact interfaces of the breathing tubes and sensors have disadvantages which limit the useful life of the breathing tubes and corresponding sensors. Furthermore, it is only the present applicant who provides a solution to the discovered problem of contact interfaces in breathing tubes.

A person of ordinary skill in the medical breathing respirator art would have no indication from Bahr that the contact type interface has a disadvantage. Therefore this person of ordinary skill would have no reason to replace the contact interface with a contactless interface. The person of ordinary skill would have no idea that such combination would be possible, or why such a combination would be beneficial. It is only the present application

which has discovered the problem of contact type interfaces and has disclosed a solution.

The courts have decided "[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the 'subject matter as a whole' which should always be considered in determining the obviousness of an invention under 35 U.S.C. § 103." In re Sponnoble, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969). Therefore since the prior art has not discovered the problem, and there is no indication that a contactless interface would correct the problem, the present claims can not be obvious in view of the prior art. The rejection is therefore untenable and overcome.

Claims 5, 15, 20

These claims set forth that the two wire line is additionally designed as a tube heater. Applicant finds no teaching nor suggestion of any structure in Bahr which is "additionally designed as a tube heater". The rejection states that the wires in Bahr are capable of producing a minimal amount of heat if so desired. However applicant finds no indication that this is desired in the applied prior art. Applicant notes that just because a structure is capable of performing a function, this capability is not an automatic indication of obviousness. Therefore this statement by itself does not support an obviousness rejection.

The Examiner also appears to take the position that a signal exchange associated with a signal line would inherently produce a minimal amount of heat. It is true that if the signals were electrical, and the signal line had resistance, some of the electrical energy in the signals

would be converted to heat as the signals propagated along the signal line. The Examiner is correct that this would produce a minimal amount of heat. An electrical engineer would try to minimize the amount of electrical energy lost to heat.

These claims on the other hand specifically set forth that the two-wire line is additionally designed as a tube heater. By these claims setting forth "additionally designed", these claims indicate that the two-wire line is to produce more than a minimal amount of heat. Therefore these claims require structure that not only exchanges signals, with its inherent minimal heat generation, but then also requires structure which "additionally" generates heat. Applicant finds no teaching nor suggestion in the applied prior art of structure which exchanges signals, and which is "additionally" designed as a heater. These claims therefore set forth structure which is in addition to any structure in the prior art which generates heat. These claims therefore further define over the prior art.

Claim 6

Claim 6 specifically sets forth that the contactless interface includes an inductive interface. Applicant notes that the specific "inductive interface" was the structure that was unknown to the Examiner during initial prosecution, and is now considered well known to the person of ordinary skill in the art of medical breathing devices. Inductive interfaces require knowledge of how magnetic fields are generated, how these magnetic fields propagate through non-conductive materials, and how these magnetic fields interact with conductive materials. This type of knowledge is not within the level of a person of ordinary skill in the medical

breathing art. Therefore it would not be obvious for a person of ordinary skill in the medical art to substitute a contact type connection of Bahr with an inductive interface. Claim 6 therefore further defines over the prior art.

Claim 7

Claim 7 sets forth that the inductive interface is designed to transmit a supply voltage to the sensor means in addition to the signals. Transmitting a supply voltage across an inductive interface is even more complicated, and requires a much higher level of skill in the engineering arts, not the medical breathing arts. A person of ordinary skill in the medical breathing arts would not have the knowledge that a supply voltage could be transmitted across an inductive interface. Only a person skilled in the arts of electronics would have this knowledge, and there is no suggestion nor motivation in Bahr that this particular knowledge in the electrical arts would be beneficial in Bahr. Claim 7 therefore further defines over the prior art.

The Examiner takes the position that the interface in Bahr would be capable of transmitting a supply voltage if so desired. However, the mere ability of a structure to perform a function is not an indication of obviousness. Therefore this statement by itself does not support the obviousness rejection. Furthermore, as described above, transmitting a supply voltage across a contact interface and a contactless interface, especially an inductive interface, is much different. Therefore a person of ordinary skill in the medical breathing art who may have knowledge of transmitting a supply voltage across a contact interface, would not necessarily have knowledge for transmitting a supply voltage across an inductive interface.

Claim 7 therefore further defines over the prior art.

Claim 8

Claim 8 sets forth that the contactless interface is an infrared interface. The knowledge of infrared interfaces is also a specialized knowledge, and not within the skill set of a person of ordinary skill in medical breathing arts. Creating, transmitting and receiving an infrared signal is much different from an inductive interface, and is very much different from a contact type connection. Therefore a person of ordinary skill in the medical breathing art would not be led to use an infrared interface instead of the contact connections in Bahr.

Furthermore, even if the person of ordinary skill had knowledge of the existence of infrared interfaces, the prior art gives no indication to the person of ordinary skill that an infrared interface would be beneficial. An infrared interface is much more complicated and much more expensive than a contact type connection of Bahr. The person of ordinary skill would have no idea why such a substitution would be beneficial. It is only the present applicant who has discovered that contact type interfaces have problems, and has disclosed that an infrared interface would overcome these problems. Therefore a person of ordinary skill in the medical breathing art would not be led to infrared interfaces, because infrared interfaces are more complicated and expensive, and there is no reason in the prior art for the ordinary person to take on this additional difficulty. Claim 9 therefore further defines over the prior art.

Claim 10

Claim 10 sets forth a second inductive interface provided on another end of the breathing gas tube. By placing inductive interfaces at each end of a breathing gas tube, the tube becomes isolated at both ends. Therefore the inductive interfaces at the ends of the tubes must be able to operate in an isolated mode, i.e. without connection to a substantial power supply such as a wall outlet, or without substantial electronics which would be available in a respirator. A person of ordinary skill in the breathing art would not have the skill level to realize that such a design is possible. Furthermore, there is no suggestion nor motivation in the field of the medical breathing art to lead the person to such a design. Claim 10 therefore further defines over the prior art.

Claims 16, 21

Claims 16 and set forth that the contactless interface includes one of an inductive interface and an infrared interface. Claims 16 and 18 therefore define over the prior art for the combination of reasons applied to claims 6 and 8.

For all of the above reasons, the Board is respectfully requested to overrule the Examiner's rejection with regard to the rejection under 35 USC section 103.

Favorable action on the merits of this application is respectfully requested.

Respectfully submitted
for Applicant,

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TD:tf
71163-13
Enclosed: Claims Appendix, Evidence Appendix, Related Proceedings Appendix

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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE IS HEREBY REQUESTED TO CHARGE SUCH FEE TO OUR DEPOSIT ACCOUNT 13-0410.

VIII CLAIMS APPENDIX

1. A respirator breathing gas tube for supplying a user with breathing gas, the breathing tube, comprising:

a sensor means at an end of the breathing gas tube facing away from the respirator;

a signal line extending along the breathing gas tube and designed to transmit signals of the sensor means to the respirator;

a contactless interface between the signal line and the sensor means.

2. A breathing gas tube in accordance with claim 1, wherein the signal line comprises a fiberoptic waveguide.

3. A breathing gas tube in accordance with claim 1, wherein the signal line is a two-wire line.

4. A breathing gas tube in accordance with claim 1, wherein the signal transmission between the respirator and the sensor means takes place bidirectionally via a data transfer.

5. A breathing gas tube in accordance with claim 3, wherein the two-wire line is additionally designed as a tube heater.

6. A breathing gas tube in accordance with claim 3, wherein the contactless interface includes a first inductive interface.

7. A breathing gas tube in accordance with claim 6, wherein the first inductive interface is designed to transmit a supply voltage to the sensor means in addition to the signals.

8. A breathing gas tube in accordance with claim 1, wherein the contactless interface is an infrared interface.

9. A breathing gas tube in accordance with claim 1, wherein the sensor means is designed as an individual sensor means or as a combination for a measurement of temperature, humidity, flow, gas concentration or pressure.

10. A breathing gas tube in accordance with claim 3, wherein a second inductive interface is provided between the breathing gas tube and the respirator.

11. A process for using respiration system with a respirator, the process comprising the steps of:

providing a sensor means for sensing breathing gas characteristics;

providing a breathing gas tube;

providing a contactless interface between the breathing gas tube and the sensor for transmitting sensor signals.

12. A process according to claim 11, further comprising:

disposing the sensor means at an end of the breathing gas tube facing away from the respirator;

providing a signal line extending along the breathing gas tube and transmitting signals of the sensor means to the respirator with the contactless interface being provided between the signal line and the sensor means.

13. A process according to claim 12, wherein the signal line comprises one of a fiberoptic waveguide and a two-wire line.

14. A process in accordance with claim 11, wherein the signal transmission between the respirator and the sensor means takes place bidirectionally via a data transfer.

15. A process in accordance with claim 13, wherein the two-wire line additionally heats the breathing gas tube.

16. A process in accordance with claim 13, wherein the contactless interface includes one of an inductive interface and an infrared interface.

17. A process in accordance with claim 11, wherein the sensor means measures one or more of temperature, humidity, gas flow, gas concentration or gas pressure.

18. A respiration system, comprising:

a respirator/ventilator;

a breathing gas tube for supplying a user with breathing gas, the breathing tube being connected to said respirator/ventilator at a proximal end and said breathing gas tube having a distal end;

a sensor at a distal end of said breathing gas tube;

a signal line extending along said breathing gas tube for transmitting signals of the sensor to said respirator/ventilator;

a contactless interface between said signal line and said sensor.

19. A respiration system in accordance with claim 18, wherein the signal line comprises one of a fiberoptic waveguide and a two-wire line establishing bidirectionally signal transmissions between said respirator/ventilator and said sensor.

20. A respiration system in accordance with claim 19, wherein the two-wire line is additionally designed as a tube heater.

21. A respiration system in accordance with claim 18, wherein the contactless interface includes one of an inductive interface and an infrared interface.

IX EVIDENCE APPENDIX

NONE

X RELATED PROCEEDINGS APPENDIX

NONE